

Application No. 10/082,771

Filed: February 25, 2002

TC Art Unit: 2633

Confirmation No.: 4427

STATUS OF THE CLAIMS

1. (Original) A method of monitoring performance of a communications network, comprising the steps of:

coupling a first communication channel and a second communication channel together in a protection-switching configuration;

simultaneously monitoring said first communication channel and said second communication channel so as to accumulate performance data of one of said channels in an active counter;

detecting a protection switchover between said first communication channel and said second communication channel; and

thereafter accumulating performance data of another of said channels in said active counter.

2. (Original) The method according to claim 1, further comprising the steps of:

memorizing a value of said active counter following expiration of a read interval; and

resetting said active counter.

3. (Original) The method according to claim 1, wherein said communications network is an optical communications network.

4. (Original) The method according to claim 3, wherein said communications network is a SONET network.

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5. (Original) The method according to claim 3, wherein said communications network is an SDH network.

6. (Original) The method according to claim 1, wherein said protection-switching configuration is a 1+1 architecture.

7. (Original) The method according to claim 1, wherein said protection-switching configuration is a 1:1 architecture.

8. (Original) The method according to claim 1, wherein said protection-switching configuration is a 1:n architecture.

9. (Original) A method of monitoring performance of a communications network, comprising the steps of:

coupling a first communication channel and a second communication channel together in a protection-switching configuration, in which one of said channels operates as an active channel;

simultaneously monitoring said first communication channel and said second communication channel so as to accumulate first performance data in a first counter and second performance data in a second counter with respect to said first communication channel and said second communication channel respectively;

while said first communication channel is operating as said active channel, accumulating said first performance data in a third counter;

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detecting a protection switchover between said first communication channel and said second communication channel; and

thereafter accumulating said second performance data in said third counter.

10. (Original) The method according to claim 9, further comprising the steps of:

after performing said step of detecting said protection switchover and prior to performing said step of accumulating said second performance data in said third counter;

resetting said first counter; and

resetting said second counter.

11. (Original) The method according to claim 9, further comprising the steps of:

memorizing a value of said third counter following expiration of a read interval; and

resetting said third counter.

12. (Original) The method according to claim 9, further comprising the step of:

after performing said step of detecting said protection switchover delaying performance of said step of accumulating said second performance data in said third counter until expiration of a read interval.

13. (Original) The method according to claim 9, wherein said protection-switching configuration is a 1+1 architecture.

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14. (Original) The method according to claim 9, wherein said protection-switching configuration is a 1:1 architecture.

15. (Original) The method according to claim 9, wherein said protection-switching configuration is a 1:n architecture.

16. (Original) A method of monitoring performance of a data network, comprising the steps of:

monitoring a first channel of an optical communications network;

simultaneously monitoring a second channel of said optical communications network;

accumulating first data that is received on said first channel in a first counter;

accumulating second data that is received on said second channel in a second counter;

accumulating said first data in a third counter;

detecting a protection switchover between said first channel and said second channel; and

thereafter accumulating said second data in said third counter.

17. (Original) The method according to claim 16, further comprising the steps of:

after performing said step of detecting said protection switchover and prior to performing said step of accumulating said second data in said third counter;

resetting said first counter; and

resetting said second counter.

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18. (Original) The method according to claim 16, further comprising the steps of:

memorizing a value of said third counter following expiration of a read interval; and

resetting said third counter.

19. (Original) The method according to claim 16, further comprising the step of:

after performing said step of detecting said protection switchover delaying performance of said step of accumulating said second data in said third counter until expiration of a read interval.

20. (Original) The method according to claim 16, wherein said steps of monitoring said first channel and monitoring said second channel are performed at a system interface.

21. (Original) The method according to claim 16, wherein said optical communications network is an SDH network.

22. (Original) A method of monitoring performance of a data network, comprising the steps of:

monitoring a first channel in a SONET network;

simultaneously monitoring a second channel in said SONET network;

accumulating first data that is received on said first channel in a first counter;

accumulating second data that is received on said second channel in a second counter;

accumulating said first data in a third counter;

detecting a protection switchover between said first channel and said second channel; and

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thereafter accumulating said second data in said third counter.

23. (Original) The method according to claim 22, further comprising the steps of:

after performing said step of detecting said protection switchover and prior to performing said step of accumulating said second data in said third counter;  
resetting said first counter; and  
resetting said second counter.

24. (Original) The method according to claim 22, further comprising the steps of:

memorizing a value of said third counter following expiration of a read interval; and  
resetting said third counter.

25. (Original) The method according to claim 22, further comprising the step of:

after performing said step of detecting said protection switchover delaying performance of said step of accumulating said second data in said third counter until expiration of a read interval.

26. (Original) The method according to claim 22, wherein said steps of monitoring said first channel and monitoring said second channel are performed at a system interface of said SONET network.

27. (Original) A performance monitoring apparatus for a data network, comprising:

a first port connectable to a first channel of a communications network;

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a second port connectable to a second channel of said communications network;

a first counter for accumulating first data that is received in said first port;

a second counter for accumulating second data that is received in said second port;

a third counter;

a switch for associating said third counter with one of said first port and said second port, said third counter accumulating one of said first data and said second data responsive to said switch; and

a processor for controlling said first counter, said second counter, said third counter and said switch;

wherein in a first mode of operation said first counter and said third counter accumulate said first data, and said second counter accumulates said second data; and

in a second mode of operation said first counter accumulates said first data, and said second counter and said third counter accumulate said second data.

28. (Original) The performance monitoring apparatus according to claim 27, further comprising a data memory accessible by said processor, wherein responsive to control signals of said processor, values accumulated in said first counter, said second counter, and said third counter are stored in said data memory.

29. (Original) The performance monitoring apparatus according to claim 28, wherein said control signals are generated at predefined read intervals.

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30. (Original) The performance monitoring apparatus according to claim 27, wherein said first counter, said second counter, and said third counter are software counters.

31. (Original) The performance monitoring apparatus according to claim 27, wherein said first port and said second port are disposed at a systems interface of said communications network.

32. (Original) The performance monitoring apparatus according to claim 27, wherein said communications network is an optical communications network.

33. (Original) The performance monitoring apparatus according to claim 32, wherein said optical communications network is a SONET network.

34. (Original) The performance monitoring apparatus according to claim 32, wherein said optical communications network is an SDH network.

35. (Original) A performance monitoring apparatus for a data network, comprising:  
a first module and a second module, each of said first module and said second module comprising:

a first port connectable to a first channel of a communications network;

a second port connectable to a second channel of said communications network;

a first counter for accumulating first data that is received in said first port;

a second counter for accumulating second data that is received in said second port;



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a third counter;

a switch for associating said third counter with one of said first port and said second port, said third counter accumulating one of said first data and said second data responsive to said switch; and

a processor for controlling said first counter, said second counter, said third counter and said switch;

wherein in a first mode of operation said first counter of said first module and said third counter of said first module accumulate said first data and said second counter of said second module accumulates said second data; and

in a second mode of operation said second counter of said first module accumulates said first data, and said first counter of said second module and said third counter of said second module accumulates said second data.

36. (Original) The performance monitoring apparatus according to claim 35, further comprising a data memory, wherein values held in said first counter, said second counter, and said third counter are periodically stored in said data memory responsive to control signals of said processor.

37. (Original) The performance monitoring apparatus according to claim 35, wherein said first counter, said second counter, and said third counter are software counters.

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38. (Original) The performance monitoring apparatus according to claim 35, wherein said first module and said second module are disposed at a systems interface of said communications network.

39. (Original) The performance monitoring apparatus according to claim 35, wherein said communications network is an optical communications network.

40. (Original) The performance monitoring apparatus according to claim 39, wherein said optical communications network is a SONET network.

41. (Original) The performance monitoring apparatus according to claim 39, wherein said optical communications network is an SDH network.

42. (Original) The performance monitoring apparatus according to claim 35, wherein responsive to control signals of said processor, a content of said third counter of said first module is transferred to said third counter of said second module.

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